

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A driving ~~controlling control~~ method ~~of for~~ a linear compressor, ~~wherein a~~ the method comprising:  
determining when the compressor is compression processing and suction processing based on a maximum value of a current and a phase angle variance; and  
applying an appropriate firing angle is respectively applied at the time of a during compression processing and a during suction processing, ~~according to a~~ respectively, based on a detected load state.
2. (Canceled).
3. (Currently Amended) The method of claim 2, ~~wherein a stroke is varied at the time of the 1, further comprising varying a stroke during~~ compression processing, and a performing full stroke control having a maximum distance between an upper dead point and a lower dead point of a piston ~~is performed at the time of the during~~ suction processing ~~in case of~~ during a high temperature load operation.

4. (Currently Amended) The method of claim 1, ~~wherein further comprising~~  
~~decreasing~~ a firing angle ~~is decrease thus so as~~ to increase a stroke ~~at the time of the during~~  
compression processing ~~in case of a in~~ high temperature load operation.

5. (Currently Amended) The method of claim 1, further comprising ~~the steps of:~~  
detecting a load of the linear compressor;  
~~determining whether the~~ comparing the detected load ~~is more than to~~ a standard load;  
performing a variable capacity control ~~for and~~ varying a stroke when the detected load is  
~~more greater than a the~~ standard load; and

performing a full stroke control having a maximum distance between an upper dead  
point and a lower dead point of a piston when the detected load is less than ~~a the~~ standard load.

6. (Currently Amended) The method of claim 5, wherein ~~the performing variable~~  
capacity control further comprises determining when the compressor is suction processing and  
~~the compression processing are determined on the basis of a based on a~~ maximum value of a  
current and a phase angle variance, and decreasing a firing angle ~~is decreased thus so as~~ to  
increase a stroke ~~at the time of the during~~ compression processing ~~in the step of controlling the~~  
variable capacity.

7. (Currently Amended) A driving ~~controlling~~ control method ~~of for~~ a linear compressor, the method comprising the steps of:

detecting a voltage and a current generated at a linear compressor;

~~receiving the detected voltage and current and thus detecting a~~ determining a present voltage/current phase difference of a corresponding time point based on the detected voltage and current;

comparing a the present voltage/current phase difference ~~of a present load state~~ with a standard voltage/current phase difference ~~of a standard load state~~; and

~~controlling a stroke by a performing variable capacity for stroke control and~~ varying a stroke when the present voltage/current phase difference ~~of a present load state~~ is ~~more greater~~ than the standard voltage/current phase difference ~~of a standard load state~~, and decreasing a stroke when the present voltage/current phase difference ~~of a present load state~~ is less than the standard voltage/current phase difference ~~of a standard load state~~.

8. (Currently Amended) The method of claim 7, wherein ~~the step of controlling a stroke by a performing variable capacity stroke control~~ comprises the steps of:

determining a whether the compressor is compression processing or a suction processing by detecting a maximum value of a current and a phase difference variance; and

decreasing a firing angle ~~thus so as to~~ increase a stroke ~~at the time of the during~~ compression processing, and maintaining a firing angle ~~thus so as to~~ maintain a full stroke having

a maximum distance between an upper dead point and a lower dead point of a piston ~~at the time of the~~ during suction processing ~~as a result of~~ based on the determination.

9. (Currently Amended) A driving ~~controlling-control~~ apparatus of a linear compressor, the apparatus comprising:

an electric circuit ~~unit for driving that~~ drives a linear compressor by varying a stroke ~~by a~~ and a corresponding piston movement;

a voltage/current ~~detecting unit for detecting~~ detector that detects a voltage and a current generated ~~at by~~ the electric circuit ~~unit~~;

a phase difference ~~detecting unit for receiving~~ detector that receives a voltage and a current from the voltage/current ~~detecting unit~~ detector and ~~thus detecting~~ detects a voltage/current phase difference ~~of at~~ a corresponding ~~time-point in time~~ in time; and

a stroke ~~controlling unit for receiving~~ controller that receives a phase difference from the phase difference ~~detecting unit and applying~~ detector and applies a stroke voltage to the electric circuit ~~unit by differently applying a~~ based on the received phase difference, wherein the stroke controller applies a different firing angle ~~at the time of a~~ during compression processing ~~and a~~ than that applied during suction processing ~~[[,]] respectively on the basis of the inputted~~ based on the received phase difference.

10. (Currently Amended) The apparatus of claim 9, wherein the stroke ~~controlling unit controller~~ applies a stroke voltage ~~for increasing that increases~~ a stroke to the electric circuit ~~unit at the time of the~~ during compression processing, and applies a stroke voltage ~~for controlling by a corresponding to full stroke control~~ having a maximum distance between an upper dead point and a lower dead point of a piston to the electric circuit ~~unit at the time of the~~ during suction processing.

11. (Currently Amended) The apparatus of claim 9, wherein the stroke ~~controlling unit controller~~ comprises:

a microcomputer ~~for comparing a~~ that compares a present voltage/current phase difference detected ~~from by the phase difference detecting unit detector~~ with a standard voltage/current phase difference ~~at the time of a standard load, thereby differently applying a~~ and applies a different firing angle ~~at the time of the during compression processing and the than~~ that applied during suction processing~~[[,]] respectively, and thus outputting based on the comparison, and outputs a switching control signal according to based on~~ the stroke voltage; and

a memory ~~for previously storing that receives and stores~~ a stroke voltage value corresponding to a voltage/current phase difference.

12. (Currently Amended) The apparatus of claim 11, wherein the stroke ~~controlling unit controls a stroke by a~~ controller performs variable capacity ~~for varying stroke control to~~

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~~vary~~ a stroke when a present voltage/current phase difference of a ~~present load state~~ is ~~more~~ greater than the standard voltage/current phase difference ~~at the time of a stand load~~, and decreases a stroke when a present voltage/current phase difference of a ~~present load state~~ is less than the standard voltage/current phase difference ~~at the time of a stand load~~.

13. (Currently Amended) The apparatus of claim 9, wherein the electric circuit ~~unit~~ switches an alternating current to a ~~train~~ thus triac to drive the linear compressor.